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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/893,036      | 06/27/2001  | Ajit V. Sathe        | 884.469US1          | 3397             |

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Schwegman, Lundberg,  
Woessner & Kluth, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402

EXAMINER

VU, QUANG D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2811     | 5            |

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                  |  |
|------------------------------|------------------------|------------------|--|
| <b>Office Action Summary</b> | Application No.        | Applicant(s)     |  |
|                              | 09/893,036             | SATHE, AJIT V.   |  |
|                              | Examiner<br>Quang D Vu | Art Unit<br>2811 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 17-34 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_ is/are allowed.

6) Claim(s) 17-34 is/are rejected.

7) Claim(s) \_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-16, drawn to method of forming an electronic package, classified in class 438, subclass 612.
- II. Claims 17-34, drawn to an electronic package substrate, classified in class 257, subclass 702.

During a telephone conversation with Nielsen Walter on 06/04/2002 a provisional election was made without traverse to prosecute the invention of group I, claims 17-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-16 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,598,033 to Behlen et al.

Regarding claim 17, Behlen et al. teach an electronic package substrate comprising:

a thin, flexible, electrically insulating film (338) having a conductor region adapted to mount an integrated circuit;

a plurality of traces (T1, T2, T3, T4) in the conductor region; and

a plurality of lands (326a-1, 326b-1, 326c-1, 326d-1) coupled to the traces (see figures 3, 4 and 6; column 5, line 47 – column 6, line 11).

Regarding claim 18, Behlen et al. teach the film is formed of material comprising a polyimide (column 4, lines 38 – 40).

Regarding claim 19, Behlen et al. teach the film comprises a plurality of layers (Layer 1, Layer 2, Layer 3, Layer 4), each comprising a plurality of traces (T1, T2, T3, T4) in the conductor region (see figures 3, 4 and 6; column 5, lines 4 – 19).

Regarding claim 20, Behlen et al. teach the lands (326a-1, 326b-1, 326c-1 and 326d-1) are arranged in a ball grid array (see figure 6).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-25, 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,598,033 to Behlen et al.

Regarding claim 21, Behlen et al. teach an electronic package comprising the film having a conductor region, a plurality of traces in the conductor region, and a plurality of lands coupled to the traces.

Behlen et al. do not explicitly teach an electronic component having a plurality of pads coupled to the plurality of lands. It would have been obvious to one having ordinary skill in the art to include the pad into the device, since it is desirable to provide interconnection points.

Behlen et al. do not teach an electrically insulating film having a thickness in the range of approximately 0.15 to 0.90 millimeters. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal thickness of the film, since it has been held that discovering an optimum value of a result effective variable involves only routines skill in the art.

Regarding claim 22, Behlen et al. teach the film is formed of material comprising a polyimide (column 4, lines 38 – 40).

Regarding claim 23, Behlen et al. teach the film comprises a plurality of layers, each comprising a plurality of traces in the conductor region (see figure 6). Behlen et al. do not teach each layer has a thickness within the range of approximately 0.15 to 0.30 millimeters. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal thickness of each layer, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 24, Behlen et al. teach the lands (326a-1, 326b-1, 326c-1 and 326d-1) are arranged in a ball grid array (see figure 6).

Regarding claim 25, Behlen et al. teach the electronic component comprises an integrated circuit (see figure 3; column 4, lines 14 – 17).

Regarding claim 26, Behlen et al. teach an electronic system comprising at least one electronic assembly comprising a thin, flexible, electrically insulating film having a conductor region, a plurality of traces in the conductor region, and a plurality of lands coupled to the traces. Behlen et al. do not teach an electronic component having a plurality of pads coupled to the plurality of lands. It would have been obvious to one having ordinary skill in the art to include the pad into the device, since it is desirable to provide interconnection points.

Regarding claim 27, Behlen et al. teach the film is formed of material comprising a polyimide (column 4, lines 38 – 40).

Regarding claim 28, Behlen et al. teach the film comprises a plurality of layers (Layer 1, Layer 2, Layer 3, Layer 4), each comprising a plurality of traces (T1, T2, T3, T4) in the conductor region (see figures 3, 4 and 6; column 5, lines 4 – 19).

Regarding claim 29, Behlen et al. teach the lands (326a-1, 326b-1, 326c-1 and 326d-1) are arranged in a ball grid array (see figure 6).

Regarding claim 30, Behlen et al. teach the electronic component comprises an integrated circuit (see figure 3; column 4, lines 14 – 17).

4. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,598,033 to Behlen et al. in view of US Patent No. 5,832,294 to Reinschmidt.

Regarding claim 31, Behlen et al. teach a thin, flexible electrically insulating film having a conductor region, a plurality of traces in the conductor region, and a plurality of lands coupled to the traces.

Behlen et al. do not explicitly teach an integrated circuit having a plurality of pads coupled to the plurality of lands. It would have been obvious to one having ordinary skill in the art to include the pad into the device, since it is desirable to provide interconnection points.

Behlen et al. do not teach a bus coupling components in the data processing system; a display coupled to the bus; a memory coupled to the bus; and a processor coupled to the bus. However, Reinschmidt teaches microprocessor, CPU, bus and memory (see figures 4a and 4b; column 2, lines 45 – 48; column 4, line 47 – column 5, line 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Reinschmidt into the device taught by Behlen et al., since it is desirable to add functionality to the device.

Regarding claim 32, Behlen et al. teach the film is formed of material comprising a polyimide (column 4, lines 38 – 40).

Regarding claim 33, Behlen et al. teach the film comprises a plurality of layers (Layer 1, Layer 2, Layer 3, Layer 4), each comprising a plurality of traces (T1, T2, T3, T4) in the conductor region (see figures 3, 4 and 6; column 5, lines 4 – 19).

Regarding claim 33, Behlen et al. teach the lands (326a-1, 326b-1, 326c-1 and 326d-1) are arranged in a ball grid array (see figure 6).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Quang Vu*  
QVU  
July 1, 2002 *QD*

*Tom Thomas*  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800